



Sheet Metal that Endures
for
Docks and Warehouses

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WHARVES, docks, warehouses, and other buildings along the seacoast face a more severe ordeal than do buildings in other fields of service. Aside from the usual hazards of wind, beating rains, lightning and fire, there is the continuous exposure to corrosive salt-laden breezes.

In this rigorous service Armco INGOT IRON points the way to many extra years of life. Translated into terms of maintenance economy, the use of Armco INGOT IRON is a real saving on the capital investment in dock and warehouse construction.

Twenty-three years' service in roofing and siding and drainage parts for a wide variety of corrosive service conditions has demonstrated pure iron's low yearly service cost on buildings exposed to salt-laden atmosphere.

A Watertight Building

The first function of roofing and siding is to prevent water from entering the buildings. Corrugated Armco INGOT IRON fulfills this essential admirably. Correctly laid, with allowance for sufficient lapping of corrugations, this type of covering is tight and impervious to water. (See our handbook, "Galvanized Iron for Roofs and Roof Drainage." It gives complete instructions, with working drawings, on the proper application of roofing and siding and roof drainage parts.)

Safe from Lightning and Fire

A building covered with Armco INGOT IRON roofing and siding, if properly grounded, is immune from destruction by lightning. To provide this protection a rod or cable should be firmly connected to the roof and carried down well into the moist subsoil. (However, the rod should hang a safe distance from the side of the building to provide air-space insulation.)

Fire protection is complete. Flying embers always fall harmlessly on an Armco INGOT IRON roof. If fire originates within, it can easily be confined to the building, thus avoiding the danger of a spreading conflagration.

Easily and Quickly Erected

A crew of inexperienced workmen under the supervision of a competent roofer can rapidly lay corrugated Armco INGOT IRON roofing and siding. No special tools or equipment are needed, and the work goes on regardless of inclement weather.

JUN 25 1930

Types of Covering Available

Several widely-used types of Armco INGOT IRON roofing are in service throughout the world, such as: Galvanized Corrugated Roofing and Siding, V Crimp, Pressed Standing Seam Roofing, Roll Roofing, and Roofdeck. These may be obtained in standard sizes and gages. Heavy gages are recommended because of their greater rigidity and relatively longer resistance to severe corrosive conditions.

Standard metal buildings of Armco INGOT IRON are supplied by many different manufacturers. Roofdeck ("Ferrobord" and "Rigideck") are also made of this rust-resisting iron, by leading manufacturers.

Dependable Drainage Equipment

It is best to provide rust-resisting Armco INGOT IRON for all drainage equipment, as well as for the roofing and siding. Gutters, downspouts, flashing, and other parts are certain to render long, low-cost service when this pure iron is used. The structure is amply protected from the ravages of seeping water and salt corrosion, the drainage investment is safeguarded, while repairs and replacement are deferred. Hence, attendant savings in maintenance.

Armco INGOT IRON has behind it the *longest record of actual service* of any low-cost, rust-resisting sheet metal used in docks and warehouses in coastal regions.

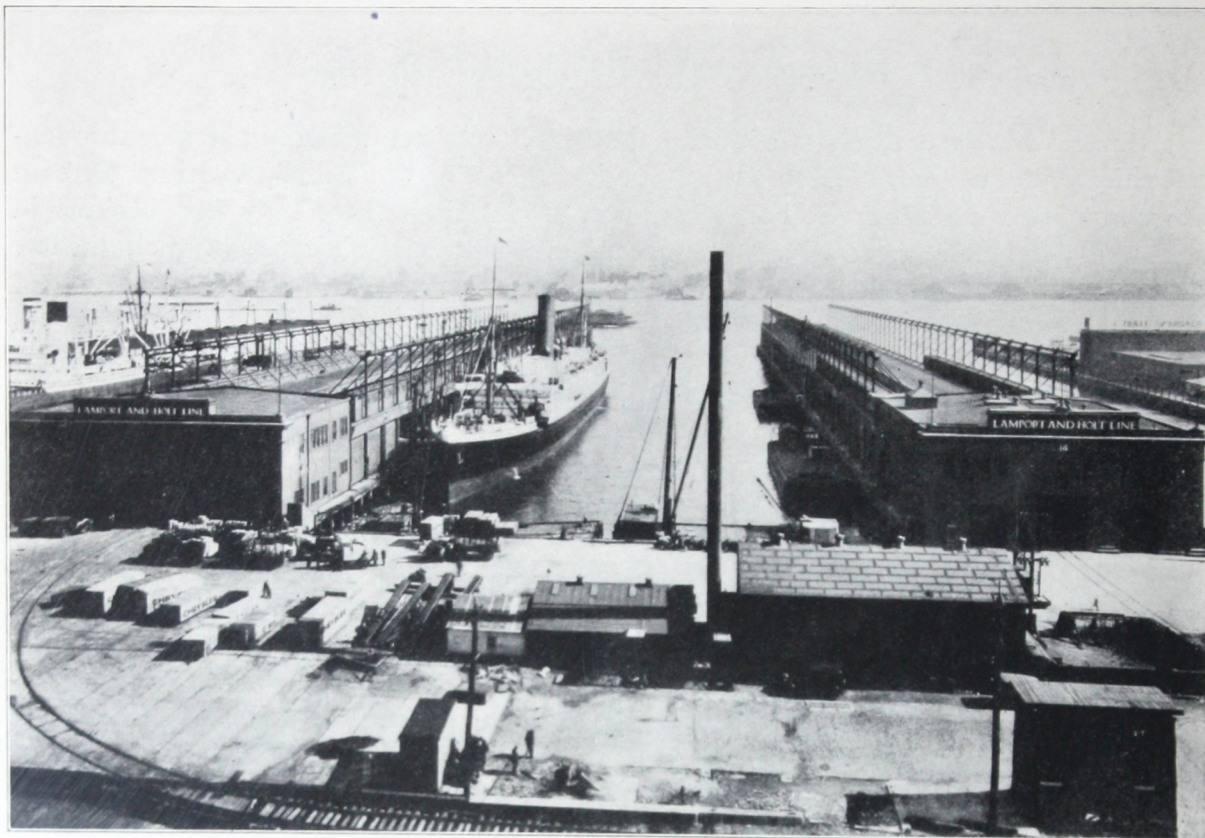
More Years of Service

In Ventilators, Duct Systems and Rolling Doors

Among the various other places where Armco INGOT IRON may be used to profit are ventilators, duct systems, and rolling doors. Standard Armco INGOT IRON ventilators, of practical design and efficient operation, may be obtained from leading manufacturers of this type of equipment. Duct systems are usually fabricated and installed by engineering construction companies who specialize in this kind of work, although many sheet metal contractors are equipped to handle such construction. Rolling doors may be obtained in rust-resisting Armco INGOT IRON. Specify it when you order equipment of this kind.

These are some of the various applications of rust-resisting Armco INGOT IRON. Others are suggested whenever the consideration of the moment points to a long-lasting, inexpensive sheet metal. Frequently economies can be effected by the substitution of light, durable sheet metal for other types of construction that promise less service-return. Here, Armco INGOT IRON, with its predetermined durability and low cost per year of service, is the ideal material.

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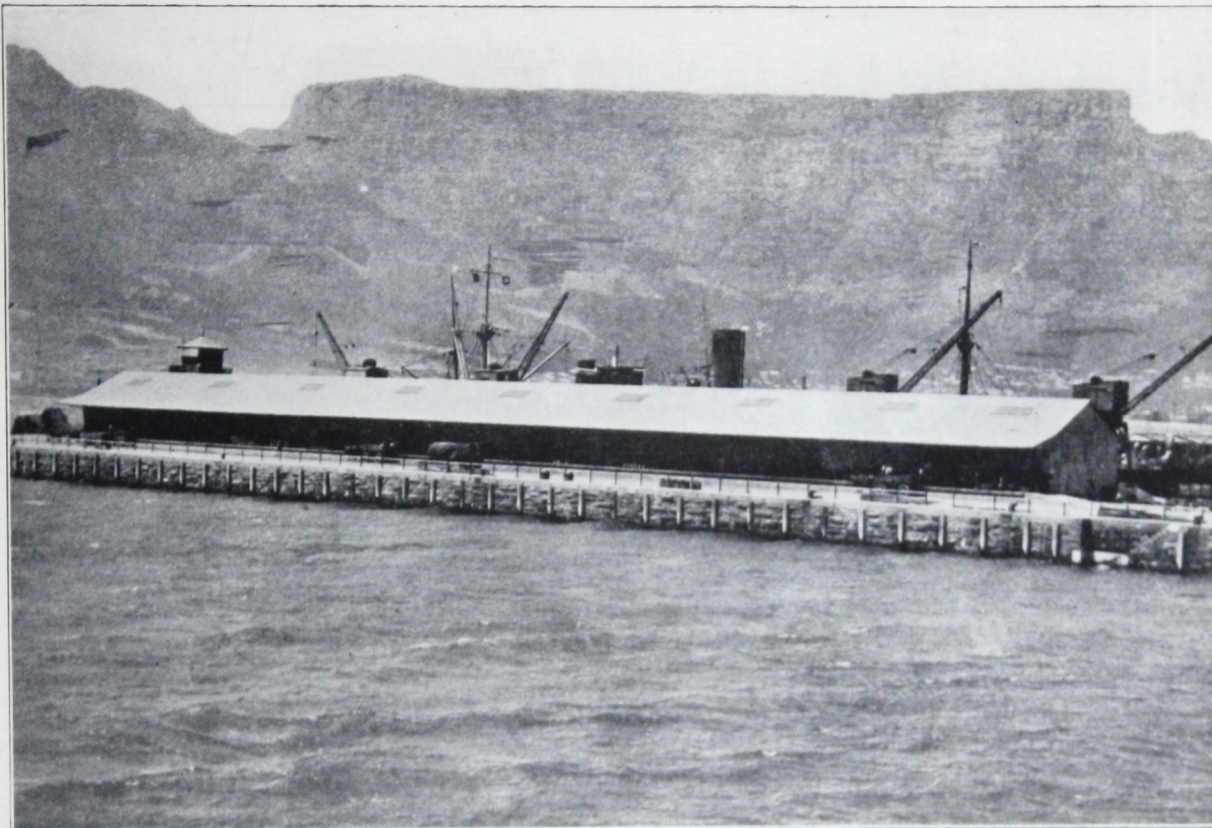
Pure Iron Withstands Pickling Brine, Engine Fumes, Salt Spray

THE superintendent and the chief engineer of the Lamport and Holt Lines in New York are well pleased with the excellent service of rust-resisting Armco INGOT IRON, used for siding their piers Nos. 14 and 15.

Pure iron siding—a hundred tons of it—continues to withstand the relentless attacks of sweeping salt breezes, of mountains of salt hides pickled in brine and piled against it, of the acrid fumes and cinders of steam locomotives continually passing under its roof. Twelve

years of such arduous service well attest to the economy obtained through the use of this rust-resisting metal.

There are many reasons why steamship companies are increasingly favoring Armco INGOT IRON for such service. The constant attack of rust-inducing elements is but one of the destructive elements to be provided against. Rain, high winds, and lightning are others that a good galvanized iron covering is well fitted to combat.



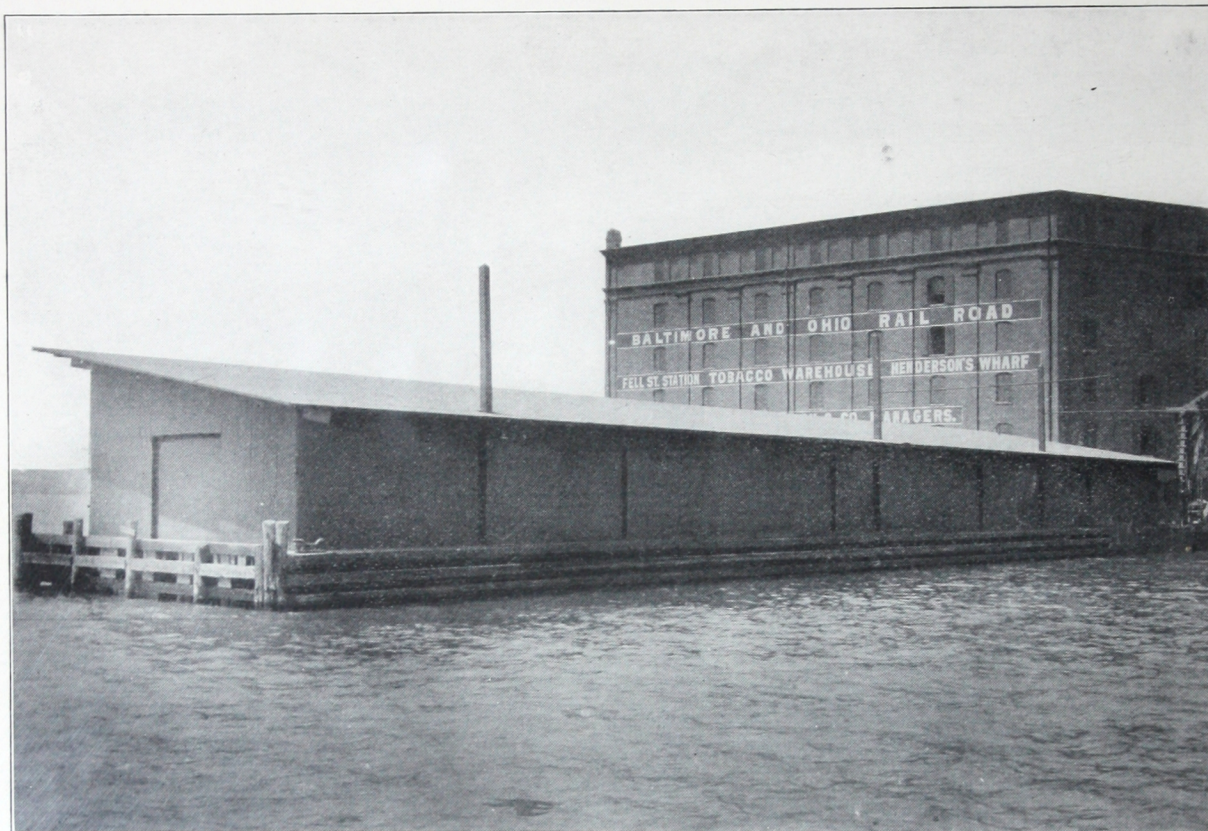
Roofing and Siding that Endures in the Tropics

ONE of the many reasons why Armco INGOT IRON is so appropriate and economical for weather protection in sea coast regions is seen in this dock warehouse of the South African Railways & Harbors at Cape Town.

For seven years the galvanized corrugated iron roof has been exposed to a variable atmosphere laden with corrosive salt. When strong southeast winds blow in from the bay, salt spray is dashed against the metal sides. These severe

conditions are aggravated by sand and silt which windstorms deposit upon the roof. Probably no region in the world presents more severe conditions for sheet metal installations.

When the Armco INGOT IRON covering was examined last, it was found in good serviceable condition. The uniform pure iron with its heavy protective galvanized coating had demonstrated its endurance, even when subjected to the elements at their worst.



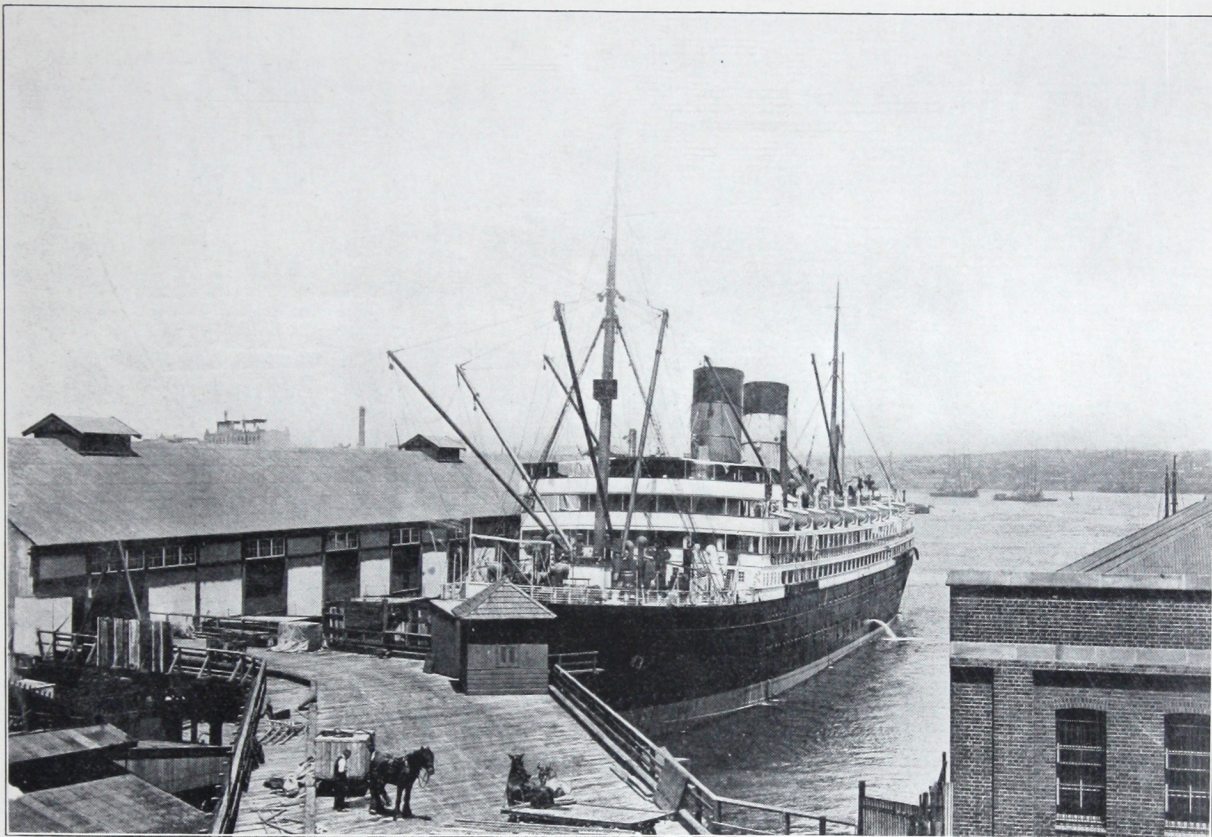
“---and the Repair Gang Has Dwindled from Twenty-five to Three”

THE Baltimore & Ohio Railroad has had a most gratifying experience with Armco INGOT IRON. A good example is the dock illustrated above—Pier Number 6, at Baltimore, Maryland.

This pier was covered with corrugated galvanized Armco INGOT IRON sheets in 1916. Since that time salt breezes from the adjacent bay have attacked the metal incessantly. Yet, the rust-resisting iron has withstood this invasion admirably, and is as protective today as the day it was laid.

The saving which this great railroad obtained from Armco INGOT IRON led them to adopt pure iron for important sheet metal construction. In explaining this move, their engineer says:

“Prior to 1910, ordinary galvanized iron was used for gutters, siding, and downspouts on all waterfront piers, and the railroad company had quite an organization continually repairing and replacing the rusted out material. Since 1910, they have standardized on Armco INGOT IRON and the repair gang has dwindled from 25 to 3.



Protecting Dock Buildings with Rust-Resisting Pure Iron

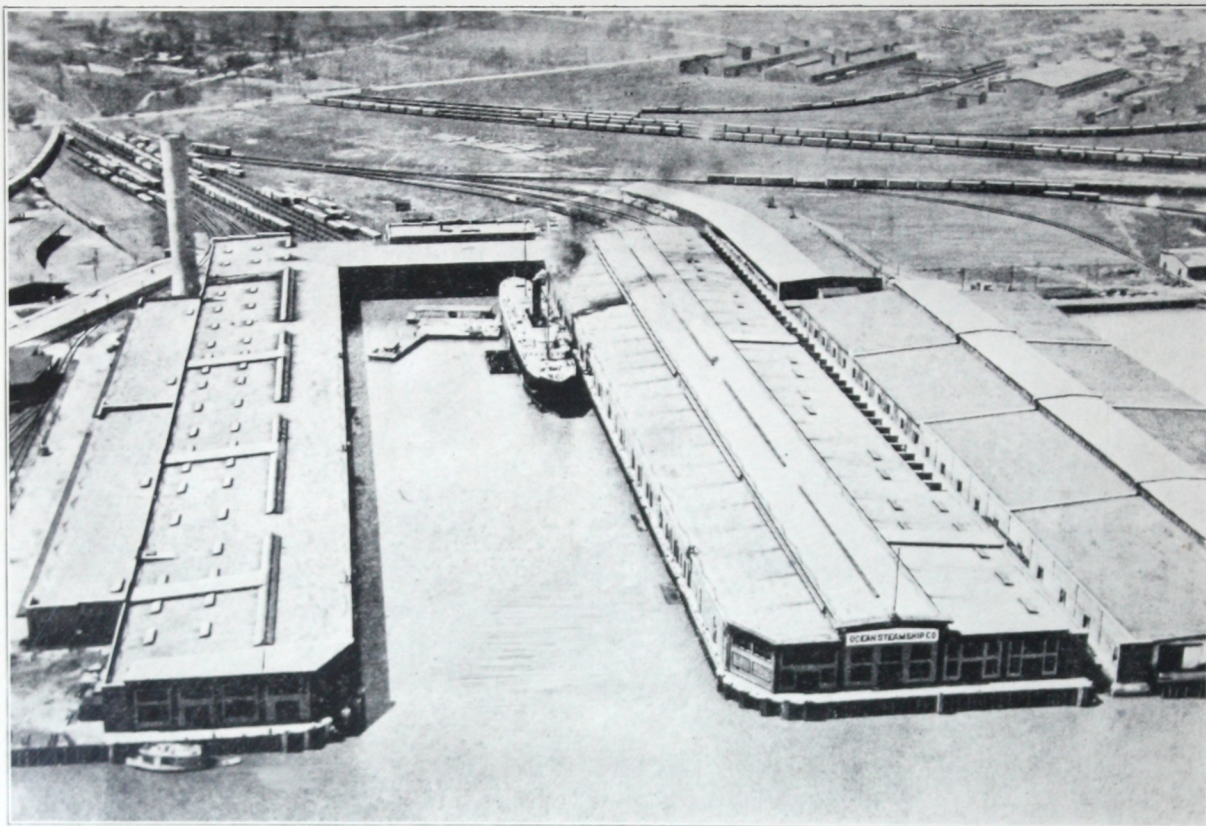
THE dock shed shown at the left of the steamer is covered with an Armco INGOT IRON roof, of the galvanized corrugated type.

Already it has returned handsome dividends of service and protection to its owners, a large Australian transportation company. There have been no repairs or replacements in a decade of service.

Not only is the roof exposed to corrosive salt air, but to fumes and smoke

from docked steamers, as well. This creates a dual hazard which Armco INGOT IRON is particularly well fortified to withstand. The uniform purity of the iron combines with a heavy galvanized coating to render utmost protection.

Other transportation companies in Australia are getting equally good results with rust-resisting Armco INGOT IRON. This pure uniform iron has proved its stamina in many an installation where ordinary metals have succumbed to the relentless attack of salt corrosion.



Big Transportation Companies Cut Upkeep with Armco INGOT IRON

FOURTEEN years of trouble-free service has convinced the Ocean Steamship Company that rust-resisting Armco INGOT IRON is the metal of lowest cost per year of service.

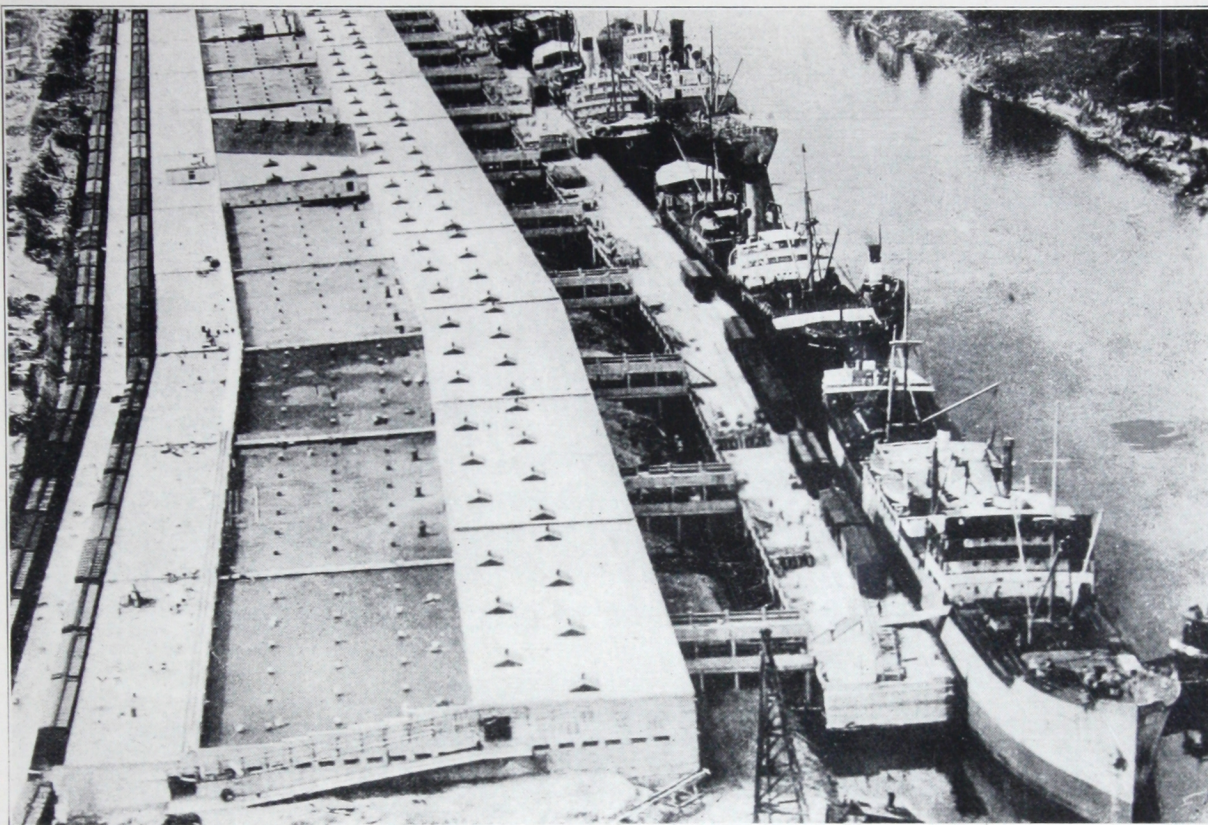
The terminal buildings of this company, at Savannah, Georgia, are completely sided with long-lasting pure iron. Galvanized corrugated sheets were chosen because of their ease of application, great strength, and heavy protective coating.

Salt air and water combine with a naturally humid atmosphere to produce

rigorous corrosive conditions. Despite the constant attack, Armco INGOT IRON has shielded the huge structures adequately, with a satisfying reduction of maintenance expense.

Apart from the siding, Armco INGOT IRON was further used for cornices, flashing, and skylights, all important construction in a building of this type.

The engineer was J. G. Bassinger, the contractor, Irwins & Leighton, of Philadelphia, while the sheet metal contractor was the Dowman-Dozier Manufacturing Company, of Atlanta, Georgia.



Salt Air Is Not the Only Cause of Corrosion Alongshore

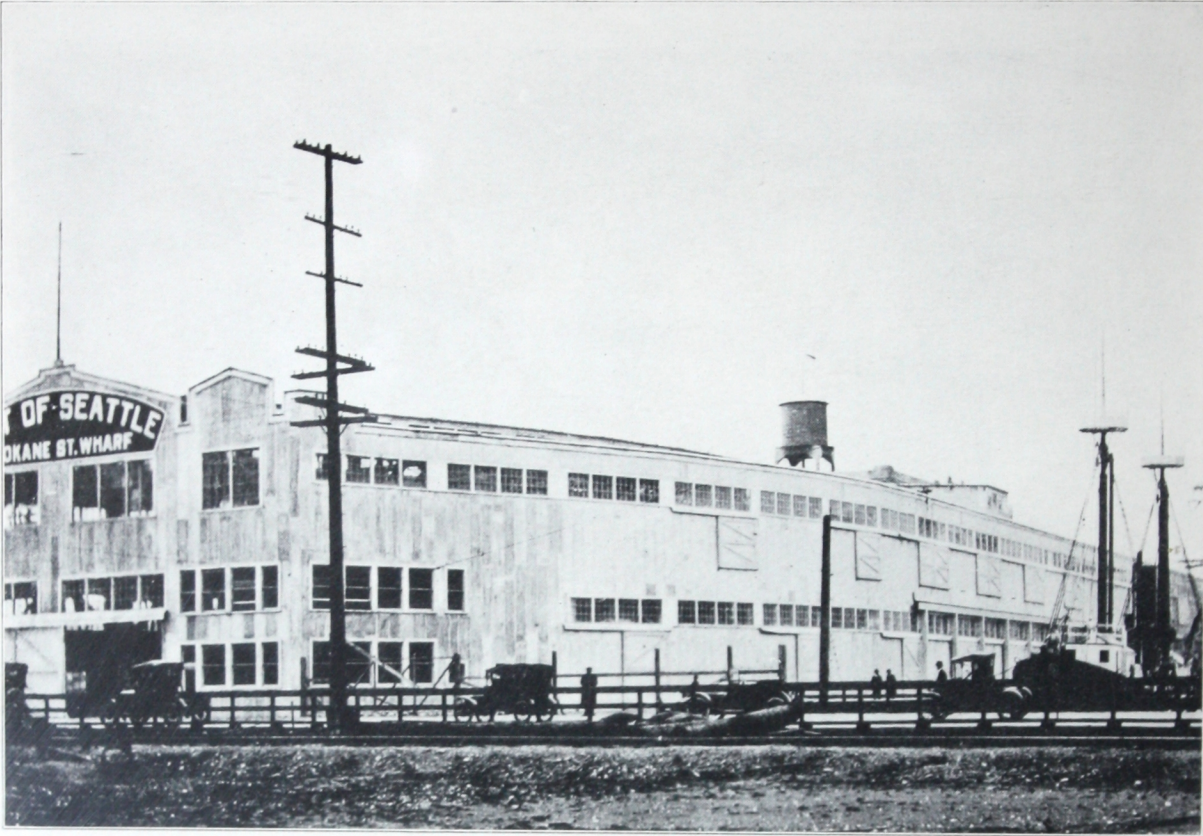
THE Anderson-Clayton Cotton Warehouse, at Houston, Texas, is one of the largest structures of its kind in the southern portion of the United States. Here, Armco INGOT IRON was used for ventilators and skylight frames—important duty for any sheet metal.

Salt air, while threatening enough, is not the only hazard of corrosion. Smoke and fumes from docked vessels attack the metal almost constantly. Moreover, the sub-tropical humidity which pre-

vails in this region throughout the greater part of the year aggravates the already severe conditions.

Despite these rigors, Armco INGOT IRON has given long, trouble-free service. Even more, it continues to safeguard the sheet metal investment of its owners, and promises much additional service.

The engineer in charge of construction was R. J. Cummins, while the contractors were Blumenthal Brothers.



Long-Lasting Low-Cost Pure Iron Covering for this Dock Shed

WHEN engineers of the Port of Seattle planned the Spokane Street Wharf, they were concerned about affording the utmost dependable protection from elements. It must shelter valuable stores, with little or no observation and maintenance.

These exacting purchasers turned to rust-resisting Armco INGOT IRON. In specifying this durable, pure iron, they were assured of reasonable first cost in addition to a full measure of protection.

The service conditions that caused their concern are abnormally severe.

Unusually heavy precipitation and mists laden with salt from the Pacific Ocean are a constant menace to roofing materials not fortified to resist it.

Besides being resistant to salt corrosion, Armco INGOT IRON galvanized corrugated roofing and siding is exceptionally easy to apply. Inexperienced workmen can quickly lay this type of covering when directed by a competent roofer. Moreover, the metal is light in weight, strong, fireproof, and, when properly grounded, provides positive protection against lightning.

Why Armco INGOT IRON Resists Rust and Corrosion

Purity means rust-resistance

Years ago, scientists predicted that, "the purer the iron the longer it would last." This prediction was founded on the premise that impurities in iron or steel accelerate corrosion.

How well pure Armco INGOT IRON has established the accuracy of this early prophecy of science is seen in its service record of twenty-two years. Sheet and plate equipment of all kinds, exposed to many varieties of corrosive conditions, has outlasted less pure irons and steels, oftentimes by many years of service. This holds true, also, in salt atmospheric service. Here, as in other fields, pure iron has given to its owners a profitable return on their metal investment—measured in exceptionally low cost per year of service.

Salt aggravates normal rusting

When salt or chemicals are present, normal atmospheric rusting gives way to corrosion, accelerated in more or less degree. Metals containing large amounts of impurities are particularly susceptible to chemical corrosion, and consequently waste away rapidly.

Armco INGOT IRON combats rust with purity

So it is that the purer the iron the longer it lasts. And here is found the reason for the exceptional rust and corrosion resistance of Armco INGOT IRON. Foreign substances—carbon, manganese, phosphorus, sulphur, and silicon—are virtually removed from the iron by special refining processes. When the metal goes into service, corrosion is retarded. The pure iron lasts longer.

Exacting service the best test of durability

Wherever sheets or plates are used about docks and warehouses, there Armco INGOT IRON has demonstrated its time and money-saving advantages. Roofing and siding, gutters, downspouts, ventilators, rolling doors, plate floors—in these and other installations has *pure iron* saved thousands of dollars that might otherwise have gone for costly maintenance and replacements.

Tell Us Your Metal Problem

-- our engineers can help you solve it

WHATEVER your particular problem in sheet or plate equipment, we shall be glad to work with you in finding the most economical solution.

ARMCO Development Engineers — a group of experienced sheet metal specialists are at your service in studying the application of sheets and plates to your particular dock and warehouse needs. Beyond this cooperation is the experience and resources of one of the best-equipped research organizations in the world, devoted to the study,



development, and perfection of sheets and plates for exacting uses.

Your knowledge of your own requirements coupled with our vast experience in solving like problems is certain to effect savings in sheet and plate equipment. Your problem may be salt corrosion in some unusual form, or it may combine salt corrosion with fabricating difficulties.

The office staff nearest you will be glad to offer you their counsel. This cooperation is tendered freely, and there is no obligation involved.

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